MELAKA

Enhancing Services and Housing

Global Platform for Sustainable Cities

Citation
Please cite the report as follows: Global Platform for Sustainable Cities, World Bank. 2019. *Melaka Sustainability Outlook Diagnostic: Supporting Report 3: Enhancing Housing and Services.* Washington, DC: World Bank.

Sustainability Outlook Diagnostic
Supporting Report 3

MELAKA
Enhancing Services and Housing

Table of Contents

Boxes

1 Services and Housing SWOT Assessment

2 Assessing Housing Affordability: The Median Multiple Affordability Index

3 Melaka's Low-Cost and Affordable Housing Schemes

Tables

1 Basic Physical Infrastructure Coverage for Melaka State, 2009–2012

2 Basic Physical Infrastructure: Horizontal Analysis

3 Housing Affordability Index Ratings

4 Housing Price and Housing Affordability Index in Melaka, 2009–2016

5 Melaka's Housing Stock by Type, 2017

6 Melaka's Low-Cost Housing Stock by Type, 017

7 Households and Living Quarters in Melaka, 2010–2017

8 Household and Living Quarter Growth, 2010–2017

9 Percentage of Households by Mode of Tenure, 2009–2015

10 Housing: Horizontal Analysis

11 Recommended Action Plan for Providing Housing and Services

Abbreviations

GDP   gross domestic product

JPPH   Valuation and Property Services Department

KKMW   State Department of Rural Development

MHB   Melaka Housing Board

SWOT   strengths, weaknesses, opportunities, and threats

Introduction

A city's ability to provide municipal services and affordable housing is a key aspect of its urban sustainability. While urbanization and economic growth create important opportunities for improving residents' quality of life, they are also often the source of rising inequalities and exclusion within cities, and hence affect overall sustainability. A socially sustainable city should provide its residents with equal and affordable access to basic necessities, including piped water, electricity, sanitation facilities, and affordable housing, to ensure that all can benefit from economic growth through shared prosperity.

Malaysia has made significant economic progress over the past decade. With a GDP per capita of US$8,669 (DOSM 2017), Malaysia now qualifies as an upper-middle-income country (Yusof and Bhattasali 2008). Melaka State has benefited greatly from Malaysia's strong economic performance, with a GDP per capita that is among the highest in Malaysia, and solid employment and income indicators. However, beyond economic growth, urban sustainability entails the ability to share the benefits of growth with citizens and fulfil citizens' needs and aspirations. This is a key component of urban sustainability that can be measured and monitored with certain key indicators.

This supporting report to the *Melaka Sustainability Outlook Diagnostic* provides a high-level assessment of the inclusiveness of Melaka's built environment and the services it provides to its residents. Melaka's strengths, weaknesses, opportunities, and threats (SWOT) as they relate to housing and services are assessed in box 1. The key messages of the report are as follows:

> **3-1**   Achieve full coverage of basic services.
>
> **3-2**   Continue focus on improving the housing market.

Concerning the first key message, Melaka has a nearly full provision of basic services throughout the state. Achieving full coverage of basic services is feasible and should be a focus in the near term. In the horizontal analysis, which compares Melaka with five other jurisdictions, the state scores high in the coverage of basic infrastructures, particularly compared to the national average, but more work remains to be done to ensure full provision of basic infrastructure to 100 percent of Melaka's population.

Regarding the second key message, housing affordability emerged as the priority area of concern during the engagement process with local stakeholders. Thus this section emphasizes assessing the affordability of the housing market and identifying potential challenges and risks that may impact Melaka's long-term housing conditions. This section first looks at overall housing affordability, affordability by dwelling type relative to local incomes, and the evolution of affordability over time. It next examines the role of the low-cost housing segment in determining housing affordability in Melaka. It then reviews Melaka's housing demand, supply, and mode of tenure indicators, and compares Melaka's housing with other peer cities'. Finally, it analyzes the risks and challenges pertaining to Melaka State's housing.

The report concludes by outlining key recommendations for the state, as follows:

> **3-A**   Increase accessibility of basic infrastructure to 100 percent coverage throughout the state.
>
> **3-B**   Improve Melaka's housing data framework.
>
> **3-C**   Integrate long-term housing considerations into planning processes.
>
> **3-D**   Promote housing supply diversification.
>
> **3-E**   Deliver additional low-cost and affordable housing through private sector partnerships.
>
> **3-F**   Improve affordability through enhanced locational accessibility.

Box 1 **Services and Housing SWOT Assessment**

The quadrants below summarize the SWOT analysis of the built environment in Melaka State, specifically its inclusiveness. A further explanation of each SWOT item is in annex B.

Strengths	Weaknesses
1. Melaka's overall housing market is affordable. 2. The volume of housing stock is increasing. 3. There are well-established low-cost and affordable housing schemes. 4. Basic infrastructure coverage is extensive.	1. Provision of low-cost housing is insufficient. 2. The nonrevenue water rate is high. 3. Piped water infrastructure coverage is inadequate.
Opportunities	Threats
1. The momentum for market residential development is strong. 2. Land use intensification and dwelling type diversification could improve the locational accessibility and affordability of housing.	1. Property values are increasing rapidly. 2. There is an overreliance on housing ownership as distinct from rental. 3. Public transport accessibility in residential areas is limited.

.

Key Message 3-1: Achieve Full Coverage of Basic Services

Melaka's basic physical infrastructure is nearing full coverage. The overall infrastructure coverage for basic services throughout Melaka State was deemed very extensive in both urban and rural areas by local stakeholder and agency representatives. The state's drinking water and sanitation infrastructures function effectively, and the local water pricing system is affordable, though the rate of nonrevenue water remains high. Basic physical infrastructure, such as road and electricity networks and waste management services, provide universal coverage and are well maintained. Some weaknesses are identified in the water treatment infrastructure in rural areas. The State Department of Rural Development (KKMW) indicated that in some new rural settlements where there is no water supply infrastructure, a small number of homes do not get treated water. KKMW is currently addressing this situation with the implementation of the Rural Water Supply project.

Further information regarding the coverage of basic infrastructure is discussed below (the public transportation network is reviewed in Supporting Report 5). Annex B contains further information on the provision of basic physical infrastructure, access to drinking water, and sanitation facilities for Melaka State.

Table 1 **Basic Physical Infrastructure Coverage for Melaka State, 2009–2012**

Metric	2009			2012		
	Total	Urban	Rural	Total	Urban	Rural
Proportion of households with piped water inside house (%)	99.6	99.7	99.1	99.9	100.0	99.6
Proportion of households with electricity (%)	99.9	99.8	100.0	100.0	100.0	100.0
Proportion of households with improved sanitation facilities (flush toilet) (%)	84.4	87.6	71.9	90.0	90.5	87.8

Source: DOSM 2015.

Melaka has practically full coverage of piped water and electricity, yet improvements are desirable for sanitation facilities. Table 1 shows the most recent indicators (2009 and 2012) of basic physical infrastructure coverage for urban and rural areas in Melaka State. It is important to note that the data is old and that the situation may have changed over the intervening years. It will be important to obtain updated information about infrastructure coverage for a more accurate understanding of the current state of things. According to this data, the coverage of basic infrastructure improved for all indicators over the three-year period, with specific gains seen in rural areas. There was not a significant difference in the provision of infrastructure in the state's urban and rural areas. In 2012, full coverage was achieved for electricity, and nearly full coverage for piped water. However, the provision of sanitation facilities has lagged behind.

Table 2 **Basic Physical Infrastructure: Horizontal Analysis**

Metric	Melaka State	Penang State	Malaysia	Singapore	Da Nang	Vietnam
Percentage of households with authorized connection to electrical energy grid	100.0%[a]	100.0%[a]	99.8%[a]	100.0%[b]	99.8%[c]	98.3%[c]
Percentage of households with a home connection to the sewer system	100.0%[a]	99.8%[a]	81.9%[a]	100.0%[b]	95.7%[c]	54.0%[c]
Percentage of water lost in the water distribution system (nonrevenue water)	19.0%[d]	21.5%[d]	35.2%[d]	5.0%[e]	–	–
Percentage of households with piped water inside residence	99.6%[a]	99.8%[a]	93.7%[a]	100.0%[b]	97.8%[f]	86.7%[f]
Percentage of households with improved sanitation facilities	90.0%[a]	82.9%[a]	80.0%[a]	100.0%[b]	95.7%[f]	54.0%[f]
Metric	Izmir	Turkey	Porto	Portugal	Recife	Brazil
Percentage of households with authorized connection to electrical energy grid	100.0%[g]	100.0%[g]	100.0%[h]	100.0%[b]	100.0%[i]	99.8%[k]
Percentage of households with a home connection to the sewer system	93.0%[g]	90.0%[g]	–	–	56.7%[i]	66.3 %[k]
Percentage of water lost in the water distribution system (nonrevenue water)	–	–	–	–	–	–
Percentage of households with piped water inside residence	98.4%[j]	97.4%[j]	100.0%[h]	95.1%[b]	87.9%[i]	97.2%[k]
Percentage of households with improved sanitation facilities	99.9%[j]	99.7%[j]	–	–	98.7%[i]	96.3%[k]

a. DOSM 2015 (2012 data).
b. World Bank 2017 (2016 data).
c. General Statistics Office of Vietnam 2017 (2014 data).
d. SPAN 2017 (2016 data).
e. PUB 2017 (2016 data).
f. General Statistics Office of Vietnam 2010 (2009 data).
g. TurkStat 2017 (2014 data).
h. Aguas do Porto 2014 (2014 data).
i. IBGE 2015 (2015 data).
j. Turkish Statistical Institute (2011 data).
k. IBGE 2017(2017 data).
Note: — = not available.

Infrastructure coverage is extensive, but there is some room for improvement. When comparing Melaka with its peers in table 2, its nonrevenue water rate (the percentage of water lost in the distribution system) is low by Malaysian standards at 19 percent, but remains high in comparison to that of Singapore, which is an international leader in efficient water management. Melaka's proportion of households with piped water inside their residence was almost 100 percent in 2012, equivalent to the share in Singapore and Porto. However, Melaka's percentage of households with improved sanitation facilities, such as flush toilets, was lower, at 90 percent. More recent data is needed to better assess current sanitation facility coverage in Melaka. The state had achieved 100 percent infrastructure coverage for its electrical energy grid and sewer system as of 2012. In comparison, Malaysia as a whole had 99.8 percent of households connected to the electrical grid and 81.9 percent connected to a sewerage system.

Key Message 3-2: Continue Focus on Improving the Housing Market

As regards the provision of infrastructure and services, housing affordability is Melaka's primary inclusion challenge. Housing affordability emerged as the primary inclusion priority during the engagement sessions with local stakeholder and agency representatives. The shortage of low-cost and affordable housing, along with the difficulty of obtaining bank loans, particularly among rural households, remains an area of concern. The engagement has shown that Melaka's overall housing stock is perceived as being relatively affordable for local middle-income earners, which is recognized as a key competitive advantage for the state. Furthermore, local stakeholders perceive the supply of housing as being sufficient to absorb demand, although the supply of single and semidetached homes is comparatively tight due to strong local preferences for these types of dwellings. Nonetheless, there is a perceived risk that rising property prices will erode this relative affordability in the medium and long term. The growing role of foreign buyers and second-home investors in the local property market is perceived as a particular risk, especially in the context of rapidly deteriorating affordability conditions in other Malaysian states.

Housing is also a key component of the State Structure Plan 2035. The strategic document (State of Melaka 2018) indicates that Melaka State will need approximately 125,000 additional housing units between 2018 and 2035, an average of just under 7,000 units per year, in order to accommodate future population growth. In addition, housing will play a significant part in shaping Melaka's future built environment. Melaka's future housing development model will strongly influence key integrated planning objectives, such as optimizing land use planning through densification. There is thus an opportunity for Melaka to leverage future housing development to both tackle its existing housing challenges and provide long-term housing affordability and sustainability.

Box 2 offers some details on how housing affordability can be measured.

Box 2 **Assessing Housing Affordability: The Median Multiple Affordability Index**

"Housing affordability" is a measure of the extent to which local residents and income earners can access housing under prevailing income and market conditions. The definition of affordability varies from one country to the next based on context-specific factors such as income levels, taxation, financing costs, and regulations. The primary indicator for measuring housing affordability in Melaka State is the Median Multiple Affordability Index, also known as the house price–to-income ratio, which is used by the Demographia International Housing Affordability Survey. The index uses the average housing price as a multiple of the gross median household income in a select market, as shown in table 3. Under this approach, a housing unit is deemed affordable if its price equals less than three years of gross median household income (i.e., an index of 3.0 or lower).

Table 3 **Housing Affordability Index Ratings**

Rating	Median Multiple Affordability Index
Severely unaffordable	5.1 and above
Seriously unaffordable	4.1 to 5.0
Moderately unaffordable	3.1 to 4.0
Affordable	3.0 and below

Source: Demographia 2017.

Table 4 shows Melaka's housing prices by dwelling type and gross median household income, as well as the housing affordability index per dwelling type, from 2009 to 2016. Melaka exhibits a healthy overall level of housing affordability: with a median multiple affordability ratio of 1.98 times the gross median annual household income in 2016, it falls under the "affordable" housing category. Furthermore, affordability improved across all housing types from 2009 to 2016 amid an increase in household incomes (64 percent) that exceeded growth in property prices (53 percent). The data confirms the perception of local agency and stakeholder representatives that Melaka's housing market is affordable relative to local incomes. This finding also echoes a previous study that also used the Demographia housing affordability approach and found that Melaka had the most affordable housing market of all Malaysian states (KRI 2015).

Table 4 **Housing Price and Housing Affordability Index in Melaka, 2009–2016**

Metric	2009	2012	2014	2016
Average housing price (RM)[a]				
All housing types	106,229	125,424	139,874	162,819
Detached	176,707	241,769	248,699	282,385
Semidetached	261,429	287,622	310,510	369,001
Terraced	88,901	108,843	120,491	140,806
Apartment	75,591	93,778	97,351	109,692
Gross median annual household income (RM)[b]	50,208	57,108	72,552	82,188
Median multiple affordability ratio[c]				
All housing types	2.12	2.20	1.93	1.98
Detached	3.52	4.23	3.43	3.44
Semidetached	5.21	5.04	4.28	4.49
Terraced	1.77	1.91	1.66	1.71
Apartment	1.51	1.64	1.34	1.33

Sources: JPPH 2017 (for average price); Department of Statistics Malaysia, Prices, Income and Expenditure Statistics Division (for gross median annual household income).
Note: Under the housing typology used in the analysis, "detached" includes single-family detached homes; "semidetached" includes single-story semidetached and two- to three-story semidetached homes; "terraced" includes single-story terraced homes, two- to three-story terraced homes, townhouses, cluster homes, and low-cost terraced homes; and "apartment" includes flats, serviced apartments, low-cost flats, and condominiums/apartments.
a. The property prices shown are for market housing and exclude nonmarket and low-cost housing.
b. Income is before taxes.
c. The median multiple affordability ratio is calculated by dividing average housing price by gross median annual household income.

However, the level of affordability varies by dwelling type. Despite improvements in overall affordability since 2009, two housing types are deemed unaffordable according to Demographia's affordability index rating. Table 4 shows that detached and semidetached homes fall under the moderately and seriously unaffordable housing categories (3.1–4.0 and 4.1–5.0, respectively). Apartments and terraced houses remain the most affordable housing types in Melaka. The lower price quantum of apartments and terraced homes confirms strong local preferences for detached and semidetached homes, a preference also suggested by the local stakeholder and agency representatives. Apartments and terraced homes are still considered entry-level housing types, rather than long-term housing options for the majority of households who aspire to own a detached property.

Table 5 shows the composition of Melaka's existing housing stock by type as well as the planned housing supply. The two housing types deemed affordable in Melaka—terraced homes and apartments—together account for 82.5 percent of the state's total existing housing units and 88.8 percent of its planned units. It is worth noting that the percentage of planned apartments (39.7 percent) far exceeds the share of apartments in the existing housing stock (14.8 percent). The growing number of planned apartment units is part of the ongoing market shift toward more affordable housing types amid rising property prices and a recent trend toward land use intensification. Melaka's low-cost and affordable housing schemes are explained in box 3.

Table 5 **Melaka's Housing Stock by Type, 2017**

Metric	Existing stock in 2017		Planned supply as of Q4 2015	
Housing type	Total housing units	Share of total	Planned units	Share of total
Detached	18,392	9.3%	638	4.7%
Semidetached	16,110	8.2%	884	6.5%
Terraced	133,704	67.7%	6,640	49.1%
Apartment	29,175	14.8%	5,371	39.7%
Total	197,381	100.0%	13,533	100.0%
Terraced and apartment ("affordable" types)	*162,879*	*82.5%*	*12,011*	*88.8%*

Source: JPPH 2015 (Q4 data).

Note: The data for the existing housing stock in 2017 includes existing housing units as well as units under construction as of Q4 2015; it is assumed that all units under construction as of Q4 2015 have been completed and are part of the existing stock as of December 2017. The data for the planned housing supply includes housing units planned or in the pipeline but not yet under construction as of Q4 2015. Under the housing typology used in the analysis, "detached" includes single-family detached homes; "semidetached" includes single-story semidetached and two- to three-story semidetached homes; "terraced" includes single-story terraced homes, two- to three-story terraced homes, townhouses; cluster homes; and low-cost terraced homes; and "apartment" includes flats, serviced apartments, low-cost flats, and condominiums/apartments.

Box 3 **Melaka's Low-Cost and Affordable Housing Schemes**

Melaka State has well-established low-cost and affordable housing schemes administered by the Melaka Housing Board (MHB). The terms "low-cost housing" and "affordable housing" are statutory housing definitions and therefore differ from the concept of market housing affordability relative to local income developed by Demographia (2017).

"Low-cost housing" as defined by the MHB ranges between RM 35,000 and RM 42,000 in total price and is reserved for households fulfilling specific eligibility requirements, including Malaysian citizenship and a monthly household income not exceeding RM 3,000 (MHB 2018a, 2018b).

"Affordable housing" is defined by MHB as dwelling units with a selling price not exceeding RM 180,000 (MHB 2018b). As of December 2015, there were 26,197 existing affordable dwelling units in Melaka. The eligibility requirements to apply for affordable housing in Melaka State include Malaysian citizenship and a monthly household income not exceeding RM 8,000 (MHB 2018b), among other requirements.

Low-cost and affordable housing in Melaka is primarily delivered through a requirement levied upon private land owners, specifically through a mandatory inclusionary zoning provision applicable for private sector developments. This provision aims to leverage private sector development projects to deliver low-cost housing projects in the state and applies to three types of developments:

1. For housing developments exceeding eight acres on Melaka Customary Land, a mandatory 20 percent of buildable area should be provided for low-cost housing.
2. For housing developments exceeding eight acres on land other than Melaka Customary Land, a mandatory 20 percent of buildable area should be provided for low-cost housing.
3. For commercial multistory buildings and bungalow lots in development areas exceeding eight acres, financial contributions per unit in lieu of the 20 percent low-cost provision are allowed.

The policy currently allows exemptions for developments comprising 1) 100 percent low-cost housing, 2) low-cost and medium-cost housing projects, 3) tourism and industrial projects, and 4) residential projects on less than eight acres of land area (MHB 2018b).

Low-cost and affordable housing schemes play a major role in filling the demand for such housing, but additional supply is needed. Table 6 shows Melaka's low-cost housing stock in 2017 and planned low-cost housing inventory as of the fourth quarter of 2015. Melaka's 39,112 existing low-cost housing units accounted for 19.8 percent of Melaka's total existing housing stock in 2017. Terraced houses accounted for 81.4 percent of the low-cost housing stock, while flats accounted for 18.6 percent. As of Q4 2015, approximately 2,664 low-cost housing units were planned in Melaka, accounting for 19.7 percent of the total planned housing inventory in Melaka and on par with the share of low-cost units in the existing housing stock. The composition of planned low-cost units is shifting toward flats, hence that flats' share in total planned units far outweighs their share in the existing housing stock.

Table 6 **Melaka's Low-Cost Housing Stock by Type**

Existing stock in (2017)	Number of existing housing units	Share of total existing housing stock	Share of low-cost housing
Low-cost house (terraced)	31,821	16.1%	81.4%
Low-cost flats	7,291	3.7%	18.6%
Low-cost housing units	**39,112**	**19.8%**	**100%**
Planned inventory (Q4 2015)	Number of planned housing units	Share of total existing housing stock	Share of low-cost housing
Low-cost house (terraced)	1,003	7.4%	37.7%
Low-cost flats	1,661	12.3%	62.3%
Low-cost housing units	**2,664**	**19.7%**	**100%**

Source: JPPH 2015 (Q4 data).
Note: The data for the existing housing stock in 2017 includes existing housing units as well as units under construction as of Q4 2015; it is assumed that all units under construction as of Q4 2015 have been completed and are part of the existing stock in 2017. The data for the planned housing supply includes housing units planned or in the pipeline but not yet under construction as of the fourth quarter of 2015.

Table 7 **Households and Living Quarters in Melaka, 2010–2017**

Metric	2010	2011	2012	2013	2014	2015	2016	2017
Households	196,910	201,600	206,200	210,800	215,600	220,400	225,300	230,300
Living quarters	240,200	245,000	249,300	253,600	258,000	262,400	266,900	271,400
Living quarters–to-household ratio	1.22	1.22	1.21	1.20	1.20	1.19	1.18	1.18

Source: DOSM 2017.
Note: The definition of "living quarters" differs from that of "housing unit." "Housing unit" refers to the main housing structure as defined in the legal property title. "Living quarters" is defined as a separate and independent structure that is used as the usual place of abode. The term "separate" and "independent" are defined as follows: A structure is considered separate if it is surrounded by walls, fence, etc. and is covered by roof; a structure is said to be independent if it has direct access via public staircase, communal passageway, or landing (that is, occupants can come in or go out of their living quarters without passing through others' premises). In Melaka, there are more living quarters than housing units as there can be several living quarters within one housing unit. For instance, a single-detached home divided into one primary and one secondary suite with separate entrances and facilities will count as one housing unit but two living quarters. Thus the number of living quarters and number of housing units in Melaka are not identical.

Melaka State's housing supply volume can be attributed to three main local dynamics. First, Melaka is a popular location for second homes and investment properties. As such, a substantial percentage of homes there are not occupied by full-time residents and remain predominately empty. Second, Melaka has been experiencing rapid property development in recent years, with a large number of new housing units being added to the market. Increasingly, these new units are purchased by investors and offered on the rental market, and many of them remain vacant for extended periods of time. A number of newly built but unsold units also contribute to the available housing stock. Third, the subdivision of landed property into separate living quarters, including secondary suites, is a popular and affordable approach to providing affordable housing for both family members and renters, and it in turn contributes to the large housing stock in Melaka (as further explained in the note to table 7).

Table 8 shows that household growth in Melaka State exceeded housing stock growth over the period 2010–2017. However, it is important to note that excess supply does not indicate high rates of housing availability. A large percentage of the excess supply may be intended for occasional personal and family use and will not be made available for rental or sale on the market. Thus the delivery of new living quarters remains essential to absorb growing housing demand associated with household creation. Furthermore, without available statistics on rental property vacancy rates in Melaka, it is not possible to effectively assess whether the available rental housing

supply currently meets market demand. Should household growth remain stronger than the growth in living quarters for an extended period of time, the absorption of the excess housing supply could end up hurting affordability.

Table 8 **Household and Living Quarter Growth, 2010–2017**

Metric	2010–2017	Annual Average
Household growth	33,390	4,770
Living quarter growth	31,200	4,457

Source: DOSM 2017.
Note: The table shows net increase in housing stock based on the total living quarter count estimates, not housing construction starting or completing. The increase includes the delivery of new units as well as the replacement of existing units, minus any demolished units.

Melaka has a rising ownership rate. Table 9 shows the percentage of households in Melaka by mode of tenure. The change in the ownership rate over time is an indicator of market housing affordability, as it captures the participation of households in the local property market. The table shows that Melaka's ownership rate registered sustained growth from 2009 to 2015. This confirms the strong local preference for home ownership suggested by local stakeholder and agency representatives. The healthy growth in home ownership over time also suggests that there are affordable options available to households. The data shows that there are no informal housing settlements in Melaka.

Rental housing, while in decline, remains nonetheless a significant segment of the market. As the SWOT mentions, a potential threat for Melaka is the gradual overreliance on homeownership and not having a large enough provision of rental housing to adequately support that segment of residents in the future.

Table 9 **Percentage of Households by Mode of Tenure, 2009–2015**

Metric	2009	2012	2015
Ownership	76.9%	80.6%	84.0%
Rental	23.1%	19.4%	16.0%
Squatters/informal housing	0.0%	0.0%	0.0%
Total	100.0%	100.0%	100.0%

Source: DOSM 2017; State of Melaka 2018.

Compared with peer cities, Melaka's housing market is well supplied and affordable. Table 10 shows housing indicators for Melaka and select comparators. The data shows that at 1.18 living quarters per household, Melaka's housing stock–to-household ratio is high relative to all comparator cities, states, and countries, including Penang State and Malaysia as a whole. As for housing affordability, Melaka scores particularly well in comparison to Penang State, Malaysia, and Singapore, all three of which are deemed seriously unaffordable property markets. The home ownership rate is high in Melaka State relative to Penang State and Malaysia as a whole, but lower than in Singapore, Da Nang, and Vietnam, where there is a stronger culture of home ownership. Melaka State's supply of low-cost housing as a percentage of the total stock compares with that of Malaysia, but is lower than in Singapore, thanks to the unique public housing system established by Singapore's Housing and Development Board.

Table 10 **Housing: Horizontal Analysis**

Indicators	Melaka State	Penang State	Malaysia	Singapore	Da Nang	Vietnam
Housing stock–to-household ratio	1.18[a]	1.15[a]	1.11[a]	1.08[b]	0.91[c]	1.01[c]
Housing affordability index (average home price/annual median household income)	1.92[d]	5.07[d]	4.61[d]	4.80[e]	—	—
Informal settlements as % of total city area	0%[f]	0%[f]	0%[f]	0%[f]	—	—
Home ownership rate	80.6%[g]	79.0% [g]	74.5% [g]	90.9%[h]	86.3%[c]	92.8%[c]
Low-cost housing rate (% of housing stock)	21.8%[d]	18.1%[d]	21.9%[d]	73.3%[b]	—	—

a. DOSM 2017 (2016 data).
b. Singapore Urban Redevelopment Authority 2017 (2016 data).
c. General Statistics Office of Vietnam 2010 (2009 data).
d. JPPH; DOSM 2017 (2016 data).
e. Singapore Department of Statistics and Demographia 2017 (2016 data).
f. World Bank Group 2017 (2016 data).
g. DOSM 2015 (2012 data).
h. SingStat 2017 (2016 data).
— = not available.

Melaka's housing market is currently affordable. The assessment suggests that Melaka's housing market does not currently face significant issues. The overall property market remains affordable relative to local household incomes; the local housing stock comprises a variety of affordable housing options, including a large share of low-cost housing reserved for low-income households; the housing-to-household ratio remains high; and the home ownership rate has risen over time. However, there appears to be a shortage of new low-cost housing delivered relative to demand.

While Melaka's current housing affordability indicators are healthy, four risks and challenges are evident:

1. There are concerns about the difficulty faced by some low-income households—particularly one-person households or single-income families—in qualifying for and obtaining a bank loan, as well as finding a home they can afford. In particular, there is concern about the ability of households in the bottom 20 percent by income to find affordable housing, given that the rapidly rising incomes of the top 80 percent will impact housing affordability in the long run. The delivery of a sufficient number of low-cost housing units is therefore essential for housing this segment of the population.

2. There is a risk associated with rapidly rising property prices if the supply of new housing remains lower than demand over an extended period of time. The growing role of local and foreign investors can inflate prices further if the supply of new housing does not meet household growth demand.

3. Due to local cultural preferences, housing schemes, and development policies, Melaka's housing market focuses primarily on the ownership segment, providing limited options to the rental segment.

4. Melaka's households rely primarily on private motorized transportation, with 86 percent of trips made by private cars or motorcycles (State of Melaka 2018). The low mode share of public transportation in Melaka suggests a poor level of public transportation accessibility in residential areas. The reliance on private transportation indirectly increases the cost of living for households, particularly where there are several cars per households. While there are no statistics available on car ownership per household, neighborhood accessibility to public transportation, or walkability, the low public transportation shares in Melaka suggest that a majority of households allocate a significant share of their monthly income to car-related expenses, a trend that could erode housing affordability in the long-run.

Recommended Actions

Melaka State exhibits overall positive inclusiveness in the built environment. Basic physical infrastructure is available to the large majority of households, though nonrevenue water rates and the availability of sanitation facilities could be improved to achieve full coverage across the state. Housing affordability was identified as Melaka's primary inclusion priority. The assessment suggests that Melaka's housing market is affordable relative to local incomes and provides a variety of affordable housing options. Nonetheless, housing risks and challenges exist, including the limited provision of low-cost housing units, rapidly rising property prices, and the emphasis on home ownership, which disadvantages the rental housing segment. There are opportunities for Melaka to address these housing-related risks and challenges so as to achieve long-term housing affordability and sustainability.

The following are recommendations to tackle the specific challenges identified in Melaka. A suggested action plan is included in table 11.

3-A **Increase accessibility of basic infrastructure to 100 percent coverage throughout Melaka State.** Full basic infrastructure coverage in Melaka State is achievable in the short term by working with the community to identify areas and households that lack access and allocating resources toward investments in basic infrastructures and facilities.

3-B **Improve Melaka's housing data framework.** Melaka State should consider developing a comprehensive and integrated housing data framework administered by the Melaka Housing Board in collaboration with other government departments and relevant stakeholders. Such an improved housing data framework would add value to the state's current housing schemes and policies. The data framework would include quarterly or semiannual data on

- Existing housing and living quarters stock by type, size, year built, and location
- Housing projects completed, started, under construction, planned, and proposed
- Rental housing statistics (rents, vacancy rate, housing stock, demographic profile, etc.)
- Foreign investment in local residential real estate market
- Residential property transactions and property value by location
- Indicators of housing demand (household creation, low-cost housing applications, etc.)

3-C **Integrate long-term housing considerations into planning processes.** This focus can complement the goals of the State Structure Plan 2035 (State of Melaka 2018) and facilitate concerted efforts to maintain housing affordability in Melaka. The approach should incorporate a comprehensive diagnostic of the current housing situation in Melaka, a review of the policy framework, and an action plan to achieve long-term affordability, tied to land use planning processes. The comprehensive housing strategy should also consider the other related recommendations.

3-D **Promote housing supply diversification.** A strategy to diversify housing supply should be developed by the Melaka State government, in collaboration with the local development industry and other relevant stakeholders, to provide various affordable housing options that cater to increasingly diverse households. This strategy should include the following considerations:

- Gradually increase the share of apartments in the total planned housing supply to increase the number of affordable products on the market.
- Ensure that planning policies and zoning bylaws support the delivery of apartments and other multifamily residential projects in key locations.
- Promote the development of smaller housing units, including small two-bedroom, one-bedroom, and studio apartments, to cater to entry-level and first-time buyers, including single-person households.

- Promote the densification and redevelopment of excess land on existing single-family lots, including through construction of on-site secondary suites.
- Promote and support the development of good-quality purpose-built rental housing, and recognize rental housing as a viable option to achieve housing affordability. This could include provision of financial and density incentives for developers who integrate rental housing components into their new development projects.

3-E **Deliver additional low-cost and affordable housing through private sector partnerships.** Providing additional low-cost and affordable housing units through expanded partnerships with the private sector is a key priority for Melaka State. The steps below are recommended to provide additional low-cost and affordable housing in collaboration with the private sector:

- Expand the mandatory provision of low-cost and affordable housing units to include residential and mixed developments of less than eight acres of land.
- Implement a new mandatory land value capture scheme dedicated to low-cost and affordable housing for sites that achieve significant land value lifts as a result of approved densification.
- Develop negotiated public-private partnerships with local developers and operators to deliver low-cost and affordable housing as part of master planned development projects.
- Provide developers with flexibility in the delivery of low-cost housing, including the possibility of density transfer to other sites located nearby or within a suitable area determined by the authorities.
- Conduct independent sensitivity and financial analysis to ensure that existing and proposed levies and land value capture schemes are financially viable for the development industry.

3-F **Improve affordability through enhanced locational accessibility.** Housing affordability should take into account the indirect costs associated with the location of the housing supply. The actions below are recommended to enhance the accessibility of residential areas and hence improve housing affordability in Melaka:

- Concentrate a large share of future housing development, particularly new apartments, in mixed-use urban areas and along key public transport corridors.
- Improve walkability conditions in residential neighborhoods through public realm enhancement schemes, including traffic calming features, safe pedestrian crossings and sidewalks, signage, and direct pedestrian connector pathways between residential areas and key destinations nearby (schools, retail nodes, community centers, etc.).
- Introduce neighborhood retail and service centers in residential areas currently not served by local-oriented businesses.
- Develop a policy that recognizes access to public transport within walking distance as an essential urban service for residential areas.
- Improve the provision of urban services and infrastructures in areas currently underserved by select services, including public transportation, recreational facilities, street drainage, sidewalks, street lighting, etc.

Table 11 **Recommended Action Plan for Providing Housing and Services**

Item	0–4 Years	5–9 Years	10 or More years
3-A Increase accessibility of basic infrastructure to 100 percent coverage throughout Melaka State **Lead agency:** • Agencies/utilities responsible for the specific infrastructure **Supporting agency:** • KKMW		5 years	
3-B Improve Melaka's housing data framework	2 years		
3-C Integrate long-term housing considerations into planning processes		5 years	
3-D Promote housing supply diversification		10 years	
3-E Deliver additional low-cost and affordable housing through private sector partnerships		10 years	
3-F Improve affordability through enhanced locational accessibility **Lead agency:** • MHB **Supporting agencies:** • PR1MA • Syarikat Perumahan Negara Berhad (SPNB) • Melaka Economic Planning Unit (EPU)			15 years

References

Aguas do Porto. 2014. "Distribuição de Água" [Water Distribution].
http://www.aguasdoporto.pt/areas-de-intervencao/distribuicao-de-agua.

Cagamas Holdings Berhad. 2013. *Housing the Nation: Policies, Issues and Prospects.* Kuala Lumpur, Malaysia: Cagamas Holdings Berhad.

Demographia. 2017. "13th Annual Demographia International Housing Affordability Survey: 2017—Rating Middle-Income Housing Affordability."
http://www.demographia.com/dhi2017.pdf.

DOSM (Department of Statistics Malaysia). 2015. Statistics Data Warehouse (StatsDW), eDataBank, Basic Amenities.
https://www.dosm.gov.my/v1/index.php?r=column/cone&menu_id=Yk9tK2xVSmRXbzRvT U9rSlR4OE1nZz09.

——. 2017. Population and Demographic Statistics Division and Prices, Income and Expenditure Statistics Division. https://www.dosm.gov.my.

General Statistics Office of Vietnam. 2010. "The 2009 Population and Housing Census."
https://www.gso.gov.vn/default_en.aspx?tabid=617.

——. 2017. Health, Culture, Sport and Living Standard database.
https://www.gso.gov.vn/default_en.aspx?tabid=783.

IBGE (Instituto Brasileiro de Geografia e Estatística). 2015. Pesquisa Nacional por Amostra de Domicílios 2015 [National Household Sample Survey 2015 (database)].
https://www.ibge.gov.br/estatisticas-novoportal/sociais/habitacao/9127-pesquisa-nacional-por-amostra-de-domicilios.html?&t=downloads.

——. 2017. Censo Agro 2017. Editorial Products.
https://censos.ibge.gov.br/agro/2017/en/2185-news-agency/releases-en/20987-pnad-continua-de-2016-para-2017-centro-oeste-puxa-reducao-no-abastecimento-diario-de-agua-do-pais-2.html.

JPPH (Valuation and Property Services Department). 2015. "Residential Property Stock Report." Valuation and Property Services Department, NAPIC.
http://napic.jpph.gov.my/portal/web/guest/publication?p_p_id=ViewPublishings_WAR_Vie wPublishingsportlet&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=co lumn.-1&p_p_col_count=1&_ViewPublishings_WAR_ViewPublishingsportlet_action=renderReport PeriodScreenArc&publishingId=433&pageno=1.

——. 2017. "Malaysian House Price Index: Apr 2017–June 2017." Valuation and Property Services Department, NAPIC.
http://napic.jpph.gov.my/portal/publication?p_p_id=ViewPublishings_WAR_ViewPublishin gsportlet&p_p_lifecycle=0&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_count=1&_ViewPublishings_WAR_ViewPublishingsportlet_action=renderReport PeriodScreenArc&publishingId=444&pageno=1.

KRI (Khazanah Research Institute). 2015. *Making Housing Affordable*. Kuala Lumpur, Malaysia: KRI.

MHB (Melaka Housing Board). 2018a. "Re: Housing Chapter—Melaka Rapid Assessment." Email. March 7 from MHB to World Bank.

——. 2018b. Dasar-dasar Berkaitan Pembangunan Perumahan di Negeri Melaka [Housing Development Policy in Melaka State].

PUB (Singapore's National Water Agency). 2017. Water Demand and Domestic Water Consumption data set. https://data.gov.sg/dataset/water-demand-domestic-water-consumption-per-capita.

State of Melaka. 2018. *Melaka State Structure Plan 2035*.

SingStat. 2017. "Home Ownership of Resident Population." http://www.singstat.gov.sg/statistics/visualising-data/charts/home-ownership-rate-of-resident-households.

SPAN (National Water Service Commission). 2017. "Table 11: Non-Revenue Water (NRW) 2016-2017." http://www.span.gov.my/index.php/en/statistic/water-statistic/non-revenue-water-nrw-2017.

TurkStat. 2017. "Population Censuses." Turkish Statistical Institute. http://www.turkstat.gov.tr.

World Bank Group. 2017. World Development Indicators Database. https://data.worldbank.org/country.

Yusof, Z. A., and D. Bhattasali. 2008. "Economic Growth and Development in Malaysia: Policy Making and Leadership." Commission on Growth and Development Working Paper 27, World Bank, Washington, DC.

Annex A: List of Indicators Analyzed

Table 12 **Indicators Legend**

Status	Description
Adequate	The current data is adequate to measure and monitor the social dynamic observed.
Outdated	The current data and statistics date from five years ago or longer and need to be updated.
Missing	Statistics are currently unavailable.
Needs Revisiting	Information exists, but may no longer be adequate to measure the situation effectively. The statistical definition of the indicator and the data collection need to be revisited.

Table 13 **Summary of the Urban Sustainability Framework's Inclusivity and Quality of Life Indicators**

3.1 Housing	Status
Quantitative housing shortage: Living quarters–to-household ratio	Adequate
Housing affordability index (average home price/annual median household income)	Adequate
Informal settlements as % of total city area	Adequate
Home ownership rate—General population	Outdated
Home ownership rate—Poor households	Outdated
Average housing floor space per person	Missing
Housing deprivation	Missing
3.2 Drinking Water and Sanitation	
Percentage of water lost in the water distribution system	Adequate
Percentage of water samples in a year that comply with national potable water quality standards	Missing
Proportion of population with piped water inside house	Outdated
Improved sanitation facilities (percentage of population with access)	Outdated
Percentage of population that can be supplied with water by alternative methods for 72 hours	Missing
3.3 Basic Physical Infrastructure	
Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities (Sustainable Development Goal 11)	Missing
Electricity provision: Percentage of households with authorized connection to electrical energy	Outdated
Percentage of households with a home connection to the sewer system	Outdated
Proportion of population living in households with access to basic services	Missing
Average percentage of household income spent on fuel and electricity by the poorest 20 percent of the population	Missing
Energy infrastructure resilience: Number of days that city fuel supplies could maintain essential household functions (through alternative sources)	Missing
Percentage of households with access to a public health center less than 5 km away (2012)	Outdated
Percentage of urban area/urban land serviced by authorized energy grid	Missing
Average. annual number of days of power failure	Missing

Annex B: Additional SWOT Information

Strengths:

1. **Melaka's overall housing market is affordable.** Melaka exhibits a healthy overall level of housing affordability, with a median multiple affordability ratio of 1.98 times the gross median annual household income. Affordability improved across all housing types from 2009 to 2016 amid an increase in household incomes relative to property values. In addition, the two housing types deemed the most affordable in Melaka—terraced homes and apartments—together account for 82.5 percent of total existing housing units in the state.

2. **The volume of housing stock is increasing.** Housing oversupply has prevailed for several years in Melaka, with the number of living quarters exceeding the number of households (2010-2017). This large number of living quarters relative to the number of households has helped maintain reasonably priced housing in Melaka.

3. **There are well-established low-cost and affordable housing schemes.** Melaka has well-established low-cost and affordable housing schemes administered by the Melaka Housing Board, which cover approximately 39,112 low-cost units and 26,197 affordable dwelling units, accounting for approximately 24 percent of the total 271,400 living quarters available in 2017.

4. **Basic infrastructure coverage is extensive.** Full infrastructure coverage (i.e., coverage of 100 percent of households) has been achieved for electricity, and nearly full coverage has been achieved for piped water. Measured against comparator cities in the horizontal analysis, Melaka State provides a high level of basic infrastructure coverage.

Weaknesses:

1. **Provision of low-cost housing is insufficient.** Amid the rapidly rising cost of living, including in particular the cost of market housing, local stakeholder representatives identified the insufficient supply of low-cost housing available to low-income households as a key social issue and built-environment inclusiveness issue for local authorities to address.

2. **The nonrevenue water rate is high.** Melaka's nonrevenue water rate, while low by Malaysian standards at 19 percent, remains high in comparison to that of Singapore (5 percent), which is an international leader and reference in efficient water management. The high rate of water leakage implies significant financial and environmental costs that are liabilities for the Melaka State government.

3. **Piped water infrastructure coverage is inadequate.** The percentage of households with improved sanitation facilities has lagged behind measures for other basic facilities in Melaka State, not yet achieving full coverage. While the state's 90 percent coverage is higher than comparator cities', work remains to be done to achieve full coverage for a basic facility that would significantly improve citizens' quality of life.

Opportunities

1. **The momentum for market residential development is strong.** The strong residential development activity in Melaka Sate is an opportunity to expand partnerships with private sector developers and to deliver additional affordable and low-cost housing through land value capture schemes as new residential projects are built and delivered. In addition, it is an opportunity to address other built-environment inclusiveness issues, such as the poor accessibility of residential areas by nonmotorized modes of transportation.

2. **Land use intensification and dwelling type diversification could improve locational accessibility and affordability of housing.** The State Structure Plan (State of Melaka 2018) identifies areas of growth to accommodate future residential development within Melaka State through land use intensification along certain transport corridors. Increased density along major transport corridors and around transit nodes is an opportunity to deliver a variety of new dwellings—both market and nonmarket—that are affordable for the local income-earning households and accessible by both private and public transport.

Threats

1. **Property values are increasing rapidly.** A significant threat in Melaka State, and an issue to monitor closely, is the rapidly rising cost of living, and particularly the cost of housing, relative to local income, because of rapid population growth. If the supply of new housing becomes insufficient to accommodate demand, property prices rise quickly. The growing role of local and foreign investors can also inflate prices further if the supply of new housing does not meet household growth demand. While Melaka State's incomes have exhibited steady growth in recent years, this growth may not continue in the medium to long term, and property values may end up rising at a higher pace in the future, resulting in major housing affordability issues. Authorities should monitor the dynamics of housing supply and demand in Melaka State and ensure sufficient affordable and low-cost housing is being delivered to accommodate future population growth.

2. **There is an overreliance on housing ownership as distinct from rental.** Due to local cultural preferences, housing schemes, and development policies, Melaka's housing market focuses primarily on the ownership segment, providing limited options to the rental segment. While policy support for home ownership is desirable, rental housing schemes should be in place to accommodate shorter-term and transitional housing needs. An overreliance on the ownership segment may make it impossible to meet the needs of households for which rental housing is the most suitable mode of tenure.

3. **Public transport accessibility in residential areas is limited.** The low mode share of public transportation in Melaka suggests a poor level of public transportation accessibility in residential areas, which threatens to erode overall housing affordability in the long run. The reliance on private transportation indirectly increases the cost of living for households, particularly when households own several cars and allocate a significant share of their monthly income to car-related expenses.

Melaka State in Malaysia has strong sustainability aspirations and is an important member of the Global Platform for Sustainable Cities (GPSC). To inform the next update to Melaka's State Structure Plan, GPSC performed a sustainability outlook diagnostic to holistically consider six dimensions of the state's urban sustainability. The diagnostic consists of an overview report—containing a policy brief, executive summary, and benchmarking assessment—and six supporting reports that cover each of the diagnostic's dimensions. Informed by a wide range of stakeholder consultations and by data, analyses, and the benchmarking assessment, the reports offer key messages and recommendations for action so that Melaka can chart its own pathway to urban sustainability.